

## CLAIMS

1. A method for manufacturing artificial cartilage, characterized in that undifferentiated mesenchymal cells are cultured in a cartilage differentiation inducing medium, and the cells are irradiated with ultrasound.
2. A method for manufacturing artificial cartilage according to Claim 1, characterized in that the ultrasound has a frequency of 20 kHz to 10 MHz, a burst width of 10  $\mu$  sec to 1 msec, a repetition rate of 5 Hz to 10 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.
3. A method for manufacturing artificial cartilage according to Claim 2, characterized in that the ultrasound has a frequency of 1.5 MHz, a burst width of 200  $\mu$  sec, a repetition rate of 1.0 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.
4. An artificial cartilage that has been produced by ultrasound irradiation of undifferentiated mesenchymal cells under cultivation in a cartilage differentiation inducing medium.
5. An artificial cartilage that has been produced by irradiating undifferentiated mesenchymal cells under cultivation in a cartilage differentiation inducing medium with ultrasound having a frequency of 20 kHz to 10 MHz, a burst width of 10  $\mu$  sec to 1 msec, a repetition rate of 5 Hz to 10 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.
6. A artificial cartilage according to Claim 4, characterized in that the ultrasound has a frequency of 1.5 MHz, a burst width of 200  $\mu$  sec, a repetition rate of 1.0 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.
7. An apparatus for manufacturing artificial cartilages comprising a culture vessel containing cultured undifferentiated mesenchymal cells, an ultrasound transducer for applying ultrasound to the vessel, a control means for controlling the ultrasound, and a holding water-tank for installing the ultrasound transducer and the culture vessel in the holding water-tank in such a state that they are in contact with each other.
8. An apparatus for manufacturing the artificial cartilage according to Claim 7, characterized in that the control means is a means for

controlling the ultrasound transducer so that ultrasound pulse is output from it.

9. An apparatus for manufacturing the artificial cartilage according to Claim 8, characterized in that the ultrasound has a frequency  
5 of 20 kHz to 10 MHz, a burst width of 10  $\mu$  sec to 1 msec, a repetition rate of 5 Hz to 10 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.

10. A method for accelerating cartilage differentiation induction, characterized in that undifferentiated mesenchymal cells are irradiated with ultrasound.

10 11. A method for accelerating cartilage differentiation induction according to Claim 10, characterized in that the ultrasound has a frequency of 20 kHz to 10 MHz, a burst width of 10  $\mu$  sec to 1 msec, a repetition rate of 5 Hz to 10 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.

15 12. A method for accelerating cartilage differentiation induction according to Claim 10, characterized in that the ultrasound has a frequency of 1.5 MHz, a burst width of 200  $\mu$  sec, a repetition rate of 1.0 kHz, and an ultrasound intensity of 5-120 mW/cm<sup>2</sup>.